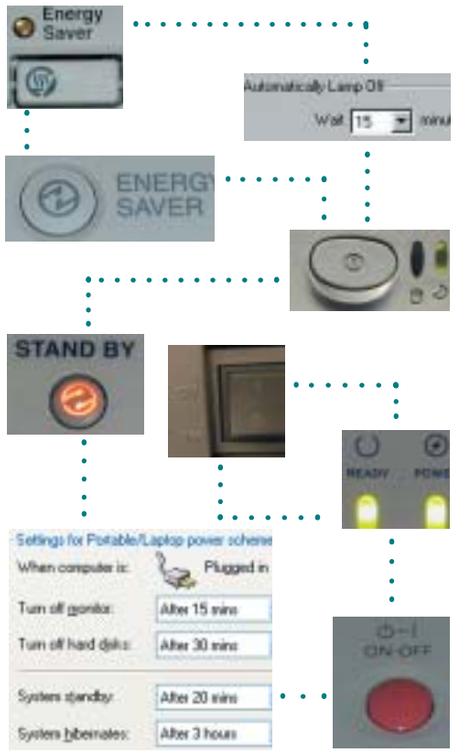
Why worry about Controls?

Office equipment and consumer electronics increasingly use power management to save billions of dollars worth of electricity each year. However, too many of these devices have the power management disabled — often because the user controls are inconsistent and confusing.

An improved user interface can save electricity without costing more to manufacture. We are working with industry leading companies to create voluntary user interface standards to accomplish this.

The graphics below demonstrate the range of inconsistent and confusing symbols and commands users face when trying to use or activate power management contols.



Interested?

Further details can be found at: http://eetd.LBL.gov/Controls

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Also, ask to be put our an email list for occasional project updates.

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Power Management Controls

The Goal

To save energy, by increasing enabling rates of existing power management capability in office equipment.

The Solution

Make power management more consistent and intuitive to users across all office equipment (via a voluntary standard).

The Standard

The six principles outlined here will save energy and improve the user experience.

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The User Interface Standard

... Words, symbols, switches, buttons, and indicators - on the outside of devices, or on displays ...

Three power states: On, Off, and Sleep

Many devices only have two or three power states, but some — most computers — have many. Whenever possible the user should only have to see or know about three.

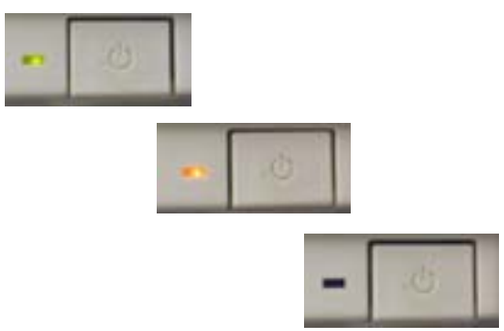
Within each state, the device will *appear* consistent (displays and indicator lights), and *behave* consistently (what wakes it up or turns it on).

Use "Power"

Use the word "Power". This covers the power **button** or **switch**, the power **indicator,** control panels, etc**.**

Use "green / amber / off"

For power indicators use **Green** for **on**, **Amber** for **sleep**, and show no color when the device is off. Red should be reserved for warnings, alarms, or errors. Use flashing only for transitions or non-power meanings.



Drop ⏼; use ⏻ for "Power"

Currently, ⏼ is for an on/off-button, and ⏻ means "Standby". In future ⏻ should mean "Power".

The ISO/IEC standards for symbols on equipment need to be changed. ⏻ meaning "Power" is most consistent with actual usage on current products.

Use the "sleep" metaphor and moon symbol

The device is "in sleep" or "asleep"; it "goes to sleep" and "wakes up".

Use the moon symbol for sleep, such as on a sleep button, displays and control panels, and the rare separate sleep indicator.

Hibernate is off

Ensure that users understand that hibernate as a form of **off**, not a type of sleep. Indicators and behavior will be consistent with off-by-shutdown.

"Hibernate" suggests sleep, and other terms used are too techie (e.g. "non-volatile sleep"). We need a new term — perhaps just "off".

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Dynamic behavior

We are still working on parts of the standard that cover the dynamic aspects of how devices behave.

Not all devices will behave the same, but we can reduce the diversity and make the behavior more consistent and intuitive. The most important parts of this are:

- What *causes* power state transitions: — what contexts and events cause what newpower state
- What happens *during* transitions: — what the user can see and hear

We will continue to draw inspiration from existing products, to identify the best designs, not invent new ones.

Below is a PC state diagram showing the possible ways to initiate each type of transition. "Auto" is an automatic action by the PC; the rest are user-initiated actions.